The Nature of Transdisciplinary Research and Practice

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Recently I attended a public symposium held by the Canadian Commission for UNESCO (May, 2004). The entire focus was on the transdisciplinary approach. Until attending this symposium, I was happy touting the merits of the interdisciplinary approach. The insights I took away from this experience prompted me to write this short paper for other home economists.

There is a growing trend to forge bridges between disciplines as people in society attempt to solve complex problems and situations, Our profession has always advocated multidisciplinary and, rhetorically, interdisciplinary approaches as ways to solve problems that occur from generation to generation. In that sense, we were ahead of our time. But, there is a new approach emerging that merits our consideration as well, the new trend of transdisciplinary research and practice. At the crux of this trend is the growing need for new kinds of knowledge, aside from that generated within one discipline or in temporary alliances among disciplines. It really is time to move beyond our penchant for specializations because society's problems are far too complex for one point of view.

Mono, multi, and interdisciplinary approaches each generate new knowledge, and the latter two overflow the boundaries between distinct disciplines, according to Nicolescu (1997), a Romanian quantum physicist. But, transdisciplinary takes us *beyond* disciplines by weaving a new kind of knowledge. There is a need for all four types of disciplinary approaches and each will now be discussed. But, the major focus of this paper will be on transdisciplinary. For many of you, this will be a "close encounter of the third kind," with such new concepts at Copyleft, intellectual outerspace, crossing through veils to different realities, isomorphies and patterns, metaphors, transversing disciplines, multiple realities, quantum complexities, honoring imaginations, zones of resistance, virtual creative commons, nuances of chaos theory, and living adaptive systems. You are in for an intellectual roller-coaster ride.

Monodisciplinary

Mono means one. This approach to practice and research means that only one discipline is brought to bear to solve a societal problem. Worse yet, it may be that just one branch (deep, fragmented specialization) within this one discipline is drawn upon. People working in one discipline (e.g., law, economics, sociology) study the same research objects, share the same paradigm (world view and set of assumptions about what is real), use common methodologies, and speak the "same" language and lingo (Regeer, 2002). Although single disciplinary work has its place, it is limiting when trying to solve complex societal problems because only one lens is brought to bear on the dynamics inherent in complexity.

Multidisciplinary

Multidisciplinary research and practice take us beyond just *one* discipline involved in the societal problem-solving process into the realm of several disciplines. From this stance, a root discipline (e.g., economics) may turn to several other disciplines to help it solve a problem. Although many perspectives are shared, the intent it to serve the root discipline that initiated the collaboration. Once the work is done, all go back to their respective places (Nicolescu, 1997). If we simply mingle disciplines to problem solve, while each discipline maintains its distinctiveness, we are multidisciplinary (Colins, 2002). Even though the boundaries come down so information can flow between the disciplines, when an answer has been found that serves the needs of the root discipline the walls come back up.

Interdisciplinary

Although the multidisciplinary approach juxtaposes specialists by sitting them down beside each other at the table, the interdisciplinary approach coordinates their expertise (Lattanzi, 1998). *Inter* means between, so interdisciplinary means interaction between two or more disciplines. Nicolescu (1997) clarifies that, while multidisciplinary refers to work that remains grounded in the framework of one discipline, interdisciplinary concerns the transfer of methods from one discipline to another either for (a) new applications, (b) new analyses, or (c) the generation of entire new disciplines. For home economics, Ellen Swallow Richards advocated the interdisciplinary approach as a way to enable our new discipline to develop over time. It involves integrating several disciplines to create a unified outcome or perspective that is sustained and substantial enough to create an entire new discipline (Colins, 2002). We do have a home economics profession now. But, McGregor and colleagues (2004) point out the unpleasant fact that, over the past 100 years, the profession has leaned more toward multidisciplinary expert specialists than interdisciplinary problem solvers. Perhaps we can mend this breach in our field by embracing a transdisciplinary approach.

When solving problems from the interdisciplinary approach, the people involved offer parallel analyses of parts of a problem. A new synergy emerges from the transfer of knowledge between disciplines. But, the intent is not to *understand the world* (as with transdisciplinary), just to solve a complex problem in that world. From a transdisciplinary approach, there is a sharing of approaches and assumptions, in dialogue, in order to weave together a new approach to complex social issues (Lattanzi, 1998). We would move from sharing different analyses or creating new applications to creating a space for shared dialogue, leading to a joint analysis using new approaches that could not have existed without the crisscrossing of ideas to weave together a new web of knowledge. Society loses when we use just the interdisciplinary approach because we are not able to deal with the profound complexity of today's problems including poverty, unsustainability, exploitation and oppression, corporate led globalization, capitalism and free market ideology. We need another approach that challenges us to push the boundaries of our thinking.

Transdisciplinary

Trans has several meanings. It refers to that which is *across the* disciplines*, between* the disciplines, and *beyond and outside* all disciplines. It *traverses* all possible disciplines. To traverse means to crisscross, zigzag, and move laterally from side to side (Nègre, 1999; Nicolescu, 1997). The objective of transdisciplinary is to understand the present world, in all of its complexities, instead of focusing on one part of it (Nicolescu). Indeed, transdisciplinary research is being conceptualized as both: (a) a specific kind of interdisciplinary research involving scientific and non-scientific sources or practice; and, more excitingly, (b) a new form of learning and problem solving involving cooperation among *different parts of society*, including academia, in order to meet the complex challenges of society. Through mutual learning, the knowledge of all participants is enhanced and this new learning is used to collectively devise solutions to intricate societal problems that are interwoven (Regeer, 2002). Out of the dialogue between academia and other parts of society, new results and new interactions are produced, offering a new vision of nature and reality (Nègre).

Creating a Transdisciplinary Knowledge Base

Transdisciplinary knowledge is a new kind of knowledge that complements traditional, mono-disciplinary knowledge. A *new intellectual space* is formed. Therein resides a gradual cross-fertilization resulting from the convergence of different paths in the spirit of conviviality and celebration (Lattanzi, 1998). This type of knowledge is globally open and entails both a new vision and lived experiences. It is also a way of self-transformation oriented toward the knowledge of the self, the unity of all knowledge, and the creation of a new art of living (Nicolescu, 1997).

There are four very compelling pillars that underpin this new knowledge: learning to know, to do, to be with, and to be (Nicolescu, 1997). Although this may sound very familiar, those advocating for the

transdisciplinary approach define these four pillars differently that we conventionally understand them. Very briefly, *learning to know* refers to training in permanent questioning of assumptions and in building bridges leading to continually connected beings. *Learning to do* certainly refers to acquiring a profession, but doing so within a profession that authentically weaves together several competencies at the same time as creating a flexible, inner, personal core. The latter refer to always being an apprentice of creativity and of creating our potential. *Learning to be with others* means that not only do we learn to respect others but we learn a new attitude that permits us to defend our own convictions. This new attitude makes a space for both open unity and complex plurality—they do not have to be in opposition to each other. Finally, *learning to be* does not mean the same thing as existing. It means discovering how we have been conditioned, determining if there is any tension between our inner self and our social life, and testing the foundations of our convictions and to question—always question. We have to continually ask ourselves "Where am I?" because things change and so do we. To state the obvious, this new knowledge is profoundly different from the other types of knowledge generated through other approaches to research and practice.

Lattanzi (1998), writing for UNESCO, suggests that distinct bodies or autonomous branches of knowledge be referred to as departments of knowledge, to distinguish them from the holistic knowledge that forms the base of transdisciplinary. From this stance, Lattanzi argues that knowledge from distinct disciplines is valuable, first-step knowledge to understand problems from one perspective and that the transdisciplinary knowledge base is best for treating problems that benefit from not treating them in "disciplinary isolation." Such problems include: human aggression, harmonious distribution of resources, development of anthropocentric (human centered) worldviews, and the realization of human empowerment and potential through education. This is why transdisciplinarity is described as a process characterized by the integration of efforts by multiple disciplines to address issues or problems with global implications. By integration is meant opening things up to all disciplines so that something new and permanent is created via synthesis and harmonization of ideas and perspectives. Indeed, many issues of fundamental importance for our society such as freedom and self-determinism issues could not even be posed within the domain of one discipline. Of significance is that Lattanzi believes that an inquiry into a simple issue should not stop just because a satisfactory explanation has been found. This approach is not inherent in the other three approaches for creating knowledge. Transdisciplinary would have us dig deeper for the underling complexity of daily reality that creates issues that have global implications: pollution, population growth, and unsustainability.

Intellectual Outerspace

Also, for those who may fear that the transdisciplinary approach may eclipse the importance of single disciplines, Lattanzi (1998) proposes that disciplinary knowledge is *intellectual innerspace* and transdisciplinary knowledge is *intellectual outerspace*. You may be chuckling at this image. But he writes, very convincingly, that we need both individual disciplines, including the possibility of new disciplines, and a space for the integration of credible knowledge into a new "whole" in which new insights can emerge (instead a black hole where everything gets sucked in—sorry, I could not resist the metaphor).

Transdisciplinary Concepts, Metaphors, and Patterns

What is really intriguing is François's (2002) notion that, while we have interdisciplinary teams, we need *transdisciplinary concepts* that serve to unify the knowledge being applied from areas that cut across the trenches that mark traditional disciplinary boundaries. These concepts become the building blocks of the bridge referred to in the first sentence of this paper. Developing these concepts will provide a way to enhance our understanding of the interwoven structures and functions that are the essence of complex, social issues. François offers the idea that we need to look for *isomorphies*. Those trained in the field of living systems will recognize this term. It refers to looking for common, predictable patterns instead of separate ideas. Following this lead, Wheatley (1999) urges us to look for patterns in nature because nature is replete with similar forms (the Greek meaning of iso-morph). Patterns help us move away from the

disparate semantics of individual disciplines toward a purer language, a set of concepts that is not influenced by each discipline's opinions and prejudices. These patterns provide a template for us to find similarity between disciplines that are not alike.

Part of this process involves the use of metaphors as tools to help us make analogical leaps from the familiar to the unfamiliar. Metaphors can be conduits or passageways to help people learn new, abstract concepts. They help us extend our familiar knowledge of the world to a region that we have not yet experienced. From a transdisciplinary perspective, this region is very complex, composed of many interconnected parts and difficult to understand because of its intricacy. Metaphors simplify and augment our joint learning process, giving us a temporary common language while we navigate the space between the disciplines. Metaphors give us new degrees of conceptual freedom, releasing us from the chains that bind us to our root disciplines. They are useful tools for conveying very complex ideas (Judge, 1991).

Nourishing the Fertile Middle Ground Between Disciplines

To use a metaphor, we do not want to build a bridge *over* the space between disciplines because transdisciplinary holds that everything happens *in* the space between the disciplines. This is because it is seen as full and vibrant rather than empty! It is in this fertile space that transdisciplinary manifests itself because transdisciplinary is nourished by disciplinary work and vice versa. Newtonian physics tells us that the space between disciplines is empty. Classical Aristotelian logic (dualities) says there is no middle ground. In practice, this means that there are many instances when people from different disciplines cannot talk to each other; hence, there can be no integration or generation of new knowledge. One of the pillars of the transdisciplinary approach is that there *is* middle ground (Nicolescu, 1997, 2001) if we accept that different people have different perceptions of things. Finding new knowledge in the fertile middle ground is not possible until everyone's ideas are heard. For each person, his/her point of view is his/her truth until it encounters something else, the ideas from another person or discipline (Enigl, 2003). It is in this fertile space that transdisciplinary blooms.

A rich example of the transdisciplinary principle of *uniting knowledge* in the space between the disciplines is the powerful new leadership theory developed by Andrews, Mitstifer, Rehm, & Vaughn (2001). They worked in that fertile middle ground between disciplines, crisscrossing between authentic leadership, quantum physics, chaos theory, and living systems theory and created a new leadership model for the profession. They called it reflective human action theory and suggested, for the first time in home economics, a way to see ourselves as leaders being shaped by the principles of the new science. As is the intent of transdisciplinary, this leadership theory helps us confront the educational, political, social, economic, cultural, and religious arenas with authenticity, reflection, and an appreciation for the order inherent in chaos. If people can move about in the middle ground, come in contact with each other, and get motivated, an energizing force is generated—a synergy is created. A sense of community and belonging is nurtured—a sense that we are part of something bigger than each one of us YET a realization that everyone is a new and different person in each relationship. The strength and potentialities that emerge are life giving and transformative. Practicing using this leadership model would mean we are free floating in *intellectual outerspace* instead of staying pinned down in our traditional, safe disciplinary space.

Complexity, Emergence, and Multiple Realities

We can form a space wherein profound new knowledge about the world can be created (Nicolescu, 2001), if we couple the acceptance of a viable middle ground between disciplines with a deep respect for complexity and the acceptance that several realities can coexist (the other two pillars of transdisciplinary). Transdisciplinary draws its notion of complexity from the new sciences of quantum physics, chaos theory, and living, adaptive systems. From this perspective, there is a difference between a complicated situation and complex situation. A complicated problem is hard to solve because it is intricate and detailed. A complex problem has the additional feature of *emergence*, the process of deriving some new and coherent structures, patterns, and properties. These begin to appear as a result of the web of relationships between

people. Imagine how different our work would be if we were dealing with new insights that materialize because of the dynamics inherent in persons working together on a problem rather than solving complicated, static problems. There is a set of constantly adapting relationships that lie at the heart of what makes solving a complex problem so special. As well, any information brought to the fertile space will be modified as it is passed from one person to another within these changing relationships. Energy and information are constantly being formed, meaning that the "fertile space between the disciplines" is in constant flux. So, not only is the space changing but so are the people, their relationships, the nature of shared information, and the energy flows. Because no one can operate without being a part of the whole, no one can control the space (Wikipedia, 2004a).

If we accept that reality is a coherent whole comprising several layers, then we can agree that we must be constantly aware of all layers as we look at anyone in particular. This realization prevents us from ever again looking at just one aspect of a problem. We would have to entertain the role of the invisible particle layer, the material layer, the biological (ecological), social and psychological layers, and the economic, political and technological layers of a complex problem. We are challenged not to lose sight of the whole as we deal with complex social issues. From this perspective, it is easy to see why transversing disciplines are so necessary to problem-solve in today's world. A robust *intellectual outerspace* would consist of a collection of differing disciplines that nevertheless have found a way to live and work together to create integrative, embodied knowledge (Aerts, 2001).

To obtain a *deeper understanding of the world* (the hallmark of the transdisciplinary approach) we must pass through a deeper understanding of these different realities (instead of images) and complexity of this world (Nicolescu, 2001). This deeper understanding can evolve if the space within which we operate is nourishing and open to several realities. One of those realities is "the sacred," that irreducible, impossible to simplify, presence in the world. One cannot leave this out if one embraces transdisciplinary because of the assumption that there are several layers of reality (Voss, 2004). Nicolescu (2000) explains that the concept of *sacred* refers to the zone of nonresistance to our perceptions, a place where our concept of reality can stretch beyond our known experiences. We allow ourselves to try to let go of the bounds of our rationality to cross through the veil to the real. Imagine the doors that would open if we assume that independent realities concurrently exist and that they manifest themselves to us through our interactions with them! We would never cease to wonder and seek far-reaching solutions to the world's pressing problems. Imagine the depth of our understanding of the world if we embraced this mindset, even when the results are counter to what our common sense would suggest.

In this state of mind, we would see information as both coming from outside us and being transformed by us. Our flow of consciousness, as we step through the veil to other realities, corresponds to the flow of information from others in this fertile space. We would move from viewing things in dualities to viewing things in open unity, more complexly. If we take the quantum world into our mindset, we can say that solving problems is associated with a substance-energy-information-space-time *complex* (Nicolescu, 2000). There is nothing simple about this. But, then, gaining a deeper understanding of the world is not a simple thing either.

Copyleft in a Virtual Creative Commons

A final example of a very novel concept germane to transdisciplinary research is that of *Copyleft* using the Internet (instead of copyright)! A copyright provides its holder the right to restrict unauthorized copying and reproduction of an original expression. Copyright is not a monopoly right to do something, merely a right to prevent others doing it. Copyleft is the opposite. It refers to the expectation that all those wanting to modify a work, using an accepted set of terms, can do so, leading to successive improvement to a concept by a wide range of contributors. This way, novel ideas, generated in the fertile space between and beyond disciplines, can be nurtured and expanded by ensuring continuous feedback and input. The author grants irrevocable permission for free unlimited use, modification, and redistribution of new material flowing from the original (called derivative works). In fact, it is expected that any new works will be

shared and that they, too, will be Copylefted. The result is a creative, *intellectual outerspace* commons on the Internet, wherein useful changes tend to be merged and other changes are maintained only to the extent that they are useful for solving the complex problems of the world (inspired by Nicolescu, 1997 & Wikipedia, 2004b).

The Transdisciplinary Charter

In 1994, a transdisciplinary charter was struck at the First World Congress of Transdisciplinarity in Portugal (15 articles). It says that transdisciplinary does not strive for the mastery of several disciplines, but rather to open all disciplines to that which they share and to that which lies beyond them, emergent as they interact. What is key to this approach is that new knowledge is generated by having people crisscross back and forth between disciplines and even goes beyond where they were when they entered the dialogue. Notions of zigzagging and going beyond known boundaries are hallmarks of transdisciplinary. This work cannot be done in isolation. It has to include academia, the arts, literature, poetry, and spiritual experiences. By association, this means that education must come to revalue the role of intuition, imagination, emotional sensibility, and body in the transmission and creation of knowledge. Shared knowledge through dialogue and discussion should lead to shared understandings. This understanding is like a fruit that is ripe with (a) rigor to avoid distortions, (b) openness and acceptance of the unknown, the unexpected, and the unforeseeable; and (c) tolerance of ideas and truths different from our own. Inherent in the transdisciplinary approach is our oneness with nature, an economy that puts people first, an open attitude toward myth and spirituality, and Earth as our home (we are all transnational beings instead of human beings) (de Freitas, Morin, & Nicolescu, 1994).

Transdisciplinary in Practice

If we want to begin to bring transdisciplinary into our practice, we would start to embrace an exciting, deep mind shift so that we

- accept that our ultimate intent is to *understand the world as a complex whole* rather than to understand problems about parts of the world.

- allow for the understanding that, instead of creating interdisciplinary "teams," we would work toward creating new *transdisciplinary concepts*, of which *patterns* are central because they provide a template for us to find similarity between disciplines that are not alike.

- create space for persons to *reach their potential and find their hidden possibilities* so they can work in dialogue to understand the world as a complex whole.

- focus on *new metaphors* as ways to illustrate the complexity of social problems and as tools to make analogical leaps from the familiar to the unfamiliar.

- *dig deeper through dialogue and perspective sharing* rather than stop at the first satisfactory explanation of a problem.

- acknowledge that the *space between disciplines is full and fertile* rather than stagnant and empty.

- respect that although knowledge from separate disciplines is important first-step knowledge, we must work collaboratively to *unite the knowledge* gained from interacting in the fertile margins.

- work to form a *new intellectual space* in which resides a gradual cross-fertilization of ideas while still respecting disciplinary work.

- search for *fruitful alternatives* rather than an obvious response.

- strive to create an intellectual space where ideas that appear to be irrelevant and have nothing in common can be merged together into new insights.

- *reconfigure our collection of concepts* to facilitate an increase in the flow or fluidity of insights that emerge, are cross-fertilized, and integrated into larger patterns.

- pay new *tribute to our imaginations* and to things being in context instead of being enamored by concrete numbers and abstract analyses.

- acknowledge that simplifying reality to simplify our work is irresponsible. We need to *embrace the complexity of life* and put in place permanent, complex structures and processes to work in intellectual outerspace (see Nicolescu, 1997 for some ideas of what this would look like in academia).

- establish studios or workshops (*ateliers) of transdisciplinary research* (free of ideological, political, or religious control) comprising researchers from all disciplines <u>and</u> people from the arts, music, theater, poets, writers, and dancers.

- build *centers of transdisciplinary orientation* far above and beyond this short article.

- establish a *virtual creative commons* wherein we can begin to shape outerspace knowledge using *Copyleft.*

- crave learning and problem solving that involve cooperation among *different parts of society*, including academia.

Considering this new approach to practice is an intellectual roller coaster, daunting and exciting at the same time. But, if we really mean it when we say home economics is about dealing with complex social problems, and if we really mean it when we say we are interdisciplinary, then taking this next step to transdisciplinarity is a natural evolution of the profession. To help each of us take this next step, I offer a self-orientation tool to aid you in determining where you are in regard to your growing understanding of the transdisciplinary approach.

Table 1 *Transdisciplinary Self-Orientation Tool*

Nuances of the transdisciplinary approach	I am aware of it.	I can explain it to others.	I have begun to use it in practice.
The ultimate agenda is to **understand the world** in all of its complexities instead of just bits and pieces of it. To begin to reach this level of understanding, people who know about the bits and pieces will agree to work and mutually learn together.			
Someone **initiates the collaborative work** and explains that the work will be happening in the fertile space between and beyond the disciplines. The walls between the disciplines will have to come down so the fertile space can grow and expand and so the people coming from different walks of life can also grow together, moving beyond the separate disciplines to a new, collective space and mindset.			
People from more than one discipline meet with non-academics (e.g., dance, music, arts) to solve complex, intricate problems. This melding of the thoughts of people from **different walks of life** is what makes this approach unique. Academic minds are trained differently than the minds of artists, poets, dancers, and musicians. They see the world differently and those differences will be used to come up with patterns of similarities that will ground the work. The diversity brings eventual unity.			

The nature of this mutual learning is quite unique—it involves questioning assumptions, building bridges (no separate paths or roads), and seeking to find out what has conditioned us to be the way we are. People will continually work on how to be with others while continually working on finding one's own potential and inner core. And, they will always strive for creativity and sharing rather than selfish retention of "my" knowledge.			
Conversations and contributions brought to the fertile space by each person are put forth knowing they will be melded with all of the others (there can be no ownership of separate bits of information). People have to know they are going to have to let go of what they brought to "the table." To arrive at a level of comfort with this letting go, people involved in these initiatives may want to create a website where they can add and edit their ideas freely as they evolve. This is called a **virtual creative commons,** and there is software that facilitates copylefting. It seems appropriate to call this emerging knowledge "outerspace knowledge" because it is created in hyperspace!			
The nature of the problems dealt with in this space is unique—each problem is a rich weave of societal structures and functions and cannot be seen as a single entity. For example, pollution, disease, population growth, and lack of peace are all linked together. Addressing just one of them is not enough.			
Indeed, those working together will know the difference between a *complicated* problem and a *complex* problem, with that difference being the property of **emergence**. Simply put, as people work together, new ideas and insights will continue to appear and bubble up as conversations simmer and perk over time. The energy flow changes because people are changing in this interactive net of relationships. Solutions to the social problem are emerging, grounded in embodied knowledge. Embodied means people have made it part of them. They cannot see the world the same way anymore because they have "put on" new sets of glasses with new lenses. They have different stories to tell now, shared stories. They have learned new dance steps, new patterns.			
The inquiry into the social issue will not stop with the first *best* answer because everyone present appreciates that the issue is profoundly complex and linked to other issues that are also complex. They will continue to dig deeper, dance longer, in unison, knowing that their collaborative efforts will pay off. They know that their dialogue about the many layers of social issues will gradually unfold while never losing sight of the "wholeness" of the issue. The result will be new, **embodied, outerspace knowledge that can be applied to solve the many layers of the social problem.**			
To aid in this problem-solving process, the people who come to these "meetings" know that the intent is to create a new space where everyone's credible ideas will be integrated into a new "whole." In order for this integration to occur, the people involved have to bravely walk out of their zone of resistance into a **common zone of acceptance**. From then on, those people involved will not see things as "her idea versus my idea" because they are no longer standing in their safety zones. They have entered the fertile space that is constantly in flux—their sound footing is no longer there. They have to learn to work in uncertainty, knowing that something will emerge that all can support and that will support all involved.			

If people from different disciplines and from civil society have no way to talk to each other, then the people at these meetings will have to respect the power of **metaphors and narratives/stories/dance**. They will be open to using these as tools to create a temporary language to help everyone navigate the unfamiliar space between their respective disciplines, like I am doing in this self-orientation tool.			
Everyone attending these problem-solving/posing sessions will have to learn to accept that what they think is true is only true until they encounter someone else's interpretation of the issue. This open-mindedness to **many different realities** prepares the way for a **shared truth to emerge** from the work being done in the fertile space.			
The people working (dancing) in the fertile space will know in their hearts that they have to move beyond creating *teams* that are only temporary and work toward **creating concepts** that form the foundation of the dance floor. These concepts (ideas in people's minds) need to be developed by everyone actively looking for common patterns to form a common language that helps people express themselves as they work in the fertile space. Although the people who develop these concepts came to the fertile space with ideas from their respective disciplines (or civil society activities), all of these old ideas will eventually be altered.			
People working in this fertile space will appreciate the **strength of patterns** as grounding concepts. Imagine a pattern for making a dress. Although many people may make different dresses using the same pattern, there will be similarities because the foundation, the basic pattern, is what makes the dresses similar. A pattern can also be defined as an activity done without thinking. After working in the fertile space, the people involved will develop patterns (of relating to each other and mutually learning) that will become second nature to them, strengthening their ability to eventually understand the world in all its complexities.			
As people work together in this space, they will be constantly weaving ideas back and forth until the original yarns (contributions) are left behind and a new fabric takes shape. This new fabric will be a richer approach to addressing the social problem and will bring them closer to understanding the world as a whole. Many new pieces of cloth will be created and, eventually, even the yarn being used will be different because people will be using the new concepts as their starting points! Or, continuing to use the dance metaphor, as people work in this space, they will constantly weave back and forth in the dance, changing partners until their original contributions are left behind and **new patterns and partners emerge**. There will be new dances, with new steps, new patterns that are continually emerging.			

An Example of a Transdisciplinary Experience

Now I will offer my own assessment of my understanding of the transdisciplinary approach, deeply informed by recent participation in a gathering about the topic of *Spirit Matters - Wisdom Traditions and The Great Work*. See http://tlc.oise.utoronto.ca/conf2004/schedule.html. It was organized by the Transformative Learning Center of the Ontario Institute for the Study of Education (OISE), part of the University of Toronto. Those at this event consciously chose to call it a *gathering* and not a conference; we were co-learners and active participants, not passive attendees.

The visionaries who planned this gathering grounded it in Thomas Berry's (1999) *Great Work*. The intent of the gathering was to celebrate our connection with earth and each other. It was like no gathering or

conference I had ever attended. The event was totally transdisciplinary, even though the word was never used at the conference (they used the word transformative). There were academics from many disciplines, high school, undergraduate, and graduate students, musicians, poets, videographers, filmmakers, writers, artists, actors, playwrights, indigenous elders and drummers, journalists, small and medium sized business and corporations, NGOs, and activists (local and world famous). It was transdisciplinary because we all eagerly jumped off our disciplinary or occupational bridges onto the fertile ground between the disciplines and danced a most awesome dance for four days (literally and figuratively).

I will harken to another principle from quantum physics that played itself out visibly at the gathering (with deep thanks to Dr. Nancy Chesworth, personal communication, May 28, 2004). There were many fuzzy-edged balls of knowledge and ways of knowing brought to this gathering. When all of these people and their knowledge balls collided on the fluxing fertile field—the sacred space, *fusion* occurred and new *outerspace knowledge* was created. This fusion happened because, when the separate bits of knowledge and the people who carried those balls came together to dance, they moved faster when they were exposed to each other than when they were alone. It was totally amazing. There are no words to describe the energy emanating from that gathering. It was palatable—you could reach out and "feel it." I went home immersed in it for days. It enveloped me and held me attached to all of those people I met and all that we shared and created. I smiled for days afterwards, at peace with myself yet very intellectually stimulated (you are reading the results of this energy). I came away with a whole lexicon of new concepts (patterns) that we worked on together and that we will all take back to our contribution to getting to know the world better—a hallmark of transdisciplinary.

- As we walk the earth, we walk on the bones of all our ancestors. On this walk, we access their stories that are not written down.

- When Aboriginal peoples walk the land, they listen to the earth. They "hear songs and stories" and when they share what they hear, these become part of the peoples' great narrative. People know where they are geographically when they hear the song or the story! There are actually song lines in the geography of a land. That is the essence of indigenous knowledge. We are living in a landscape alive with stories and these stories are inherently local and rural in nature, to be spoken, gestured, sung, or danced in that place.

- These stories and songs are a living encyclopedia in an oral culture. They are place bound and community based. If we try to write down these stories to preserve them, we take them from their place of origin and they lose their meaning. Instead, these stories have to be retold from generation to generation, in the same place, so they become stored in our bodies. That is, they become embodied. Stories told using current telecommunication technologies are placeless so they have less generational, interconnectedness power.

- My skin and color are just a covering. It cannot tell my story. You have to come inside me and hear my stories and let me be real—experience my imagination, my mystery, my secrets.

- Our dreams are our souls speaking.

- Imagine God as an underground river—the common waters—and that each religion or faith drills a well to tap into that common water. Then, there is no <u>one</u> God but a *deep common spiritual collective* lived out through unique rituals and celebrations.

- First Nations' relationship with the Earth is a way of living, not an organized religion. They give thanks 24/7 through ceremonies and rituals while others only celebrate on special occasions. Ceremonies keep us mindful of our role in the world. But, through organized religions, we lose consciousness so are not continually mindful. Religion has swamped the boat of spirituality.

- We need the globalization of spirits—emancipatory spirituality. And, we need spirituality in public

spaces (business, government, community, schools, marketplace, and NGOs), not just in the private spheres (self and home).

- Earth and women are our witnesses.

- To trust, we need to touch.

- If you are a *free spirit,* you have a real understanding of who you are. Indigenous people believe that *"freedom was rampant"* but now we are no longer free because we do not know who we are. To go is to return to your self (find yourself). To "*go*" means to learn, reflect, and critically see. Finding yourself is an act of worship!

- Your liberation and freedom is bound up with my liberation.

- The purpose of chiefs and visionaries is to keep us off balance on purpose. So, we have to keep asking ourselves "Who am I?" We have to keep checking because things and people change.

- It is significant that we call our species human **BE**ings yet we spend all of our time as humans **DO**ing. We have become so busy that we cannot think.

- We only know what it means to be human when we are in touch with other sentient beings. When we lose sight of this connection, we do not feel alarm when we are harming the earth and other species because we are not aware of our interdependence. If we think we are most important and that we know it all, we are unable to be responsible for our actions because we are simply not aware of others (they are invisible).

- And, finally, our species is living in *a collective dark night of the soul*. This is a sacred place of waiting, learning, and stillness. Something is waiting to be born in our species—a sense of hope, a connection to the future.

Imagine many local centers of hope (people connected to the future) that eventually see themselves connected to each other. THEN, there is a paradigm shift and a space opens for transdisciplinary work.

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